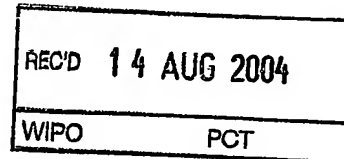


**REGISTRY OF PATENTS
SINGAPORE**

This is to certify that the annexed is a true copy of following application as filed with the Registry.

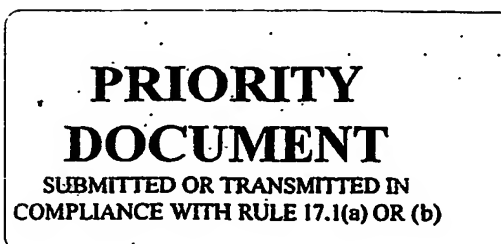
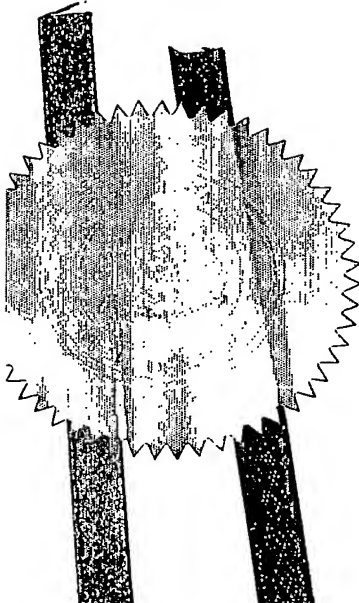
Date of Filing : 01 AUG 2003
Application Number : 200304106-8
Applicant(s) /
Proprietor(s) of Patent : FCI ASIA TECHNOLOGY PTE LTD
Title of Invention : IMPROVED CONNECTOR



A handwritten signature in black ink, appearing to read "Sharmaine Wu".

Sharmaine Wu (Ms)
Assistant Registrar
for REGISTRAR OF PATENTS
SINGAPORE

10 Aug 2004





G00001

PATENTS FORM 1

Patents Act
(Cap. 221)
Patents Rules
Rule 19

INTELLECTUAL PROPERTY OFFICE OF SINGAPORE

**REQUEST FOR THE GRANT OF A PATENT UNDER
SECTION 25**



101101

* denotes mandatory fields

1. YOUR REFERENCE*

11543SG2/SKL/SPY/va

**2. TITLE OF
INVENTION***

Improved Connector

3. DETAILS OF APPLICANT(S)* (see note 3)

Number of applicant(s)

1

(A) Name

FCI Asia Technology Pte Ltd.

Address

10 Hoe Chiang Road, #18-00 Keppel Towers, Singapore 089315

State

Country

SG

☒

For corporate applicant



For individual applicant

State of incorporation

State of residency

Country of incorporation

SG

Country of residency



For others (please specify in the box provided below)

(B) Name

Address

State

Country



☐

For corporate applicant

☐

For individual applicant

State of incorporation

State of residency

Country of incorporation

Country of residency

☐

For others (please specify in the box provided below)

(C) Name

Address

State

Country

☐

For corporate applicant

☐

For individual applicant

State of incorporation

State of residency

Country of incorporation

Country of residency

☐

For others (please specify in the box provided below)

☐

Further applicants are to be indicated on continuation sheet 1

4. DECLARATION OF PRIORITY (see note 5)

A. Country/country designated

DD MM YYYY

File number

Filing Date

B. Country/country designated

DD MM YYYY

File number

Filing Date

☐

Further details are to be indicated on continuation sheet 6

5. INVENTOR(S)* (see note 6)

A. The applicant(s) is/are the sole/joint inventor(s)

Yes

☐

No

☒

B A statement on Patents Form 8 is/will be furnished

Yes

☒

No

☐

6. CLAIMING AN EARLIER FILING DATE UNDER (see note 7)

☐

section 20(3)

☐

section 26(6)

☐

section 47(4)

Patent application number

DD MM YYYY

Filing Date

Please mark with a cross in the relevant checkbox provided below
(Note Only one checkbox may be crossed.)

☐

Proceedings under rule 27(1)(a)

DD MM YYYY

Date on which the earlier application was amended

☐

Proceedings under rule 27(1)(b)

7. SECTION 14(4)(C) REQUIREMENTS (see note 8)

Invention has been displayed at an international exhibition

Yes

☐

No

☒

8. SECTION 114 REQUIREMENTS (see note 9)

The invention relates to and/or used a micro-organism deposited for the purposes of disclosure in accordance with section 114 with a depository authority under the Budapest Treaty

Yes

☐

No

☒

9. CHECKLIST*

(A) The application consists of the following number of sheets

i.	Request	<input type="text" value="5"/>	Sheets
ii	Description	<input type="text" value="2"/>	Sheets
iii	Claim(s)	<input type="text" value="1"/>	Sheets
iv	Drawing(s)	<input type="text" value="3"/>	Sheets
v.	Abstract (Note: The figure of the drawing, if any, should accompany the abstract)	<input type="text" value="1"/>	Sheets
Total number of sheets		<input type="text" value="12"/>	Sheets

(B) The application as filed is accompanied by:

☐

Priority document(s)

☐

Translation of priority document(s)



Statement of Invention
& right to grant



International exhibition certificate

10. DETAILS OF AGENT (see notes 10, 11 and 12)

Name

Firm

Ella Cheong Mirandah & Sprusons Pte Ltd

11. ADDRESS FOR SERVICE IN SINGAPORE* (see note 10)

Block/Hse No

Level No

Unit No./PO Box

1531

Street Name

Building Name

Robinson Road Post Office

Postal Code

903031

12. NAME, SIGNATURE AND DECLARATION (WHERE APPROPRIATE) OF APPLICANT OR AGENT* (see note 12)

(Note: Please cross the box below where appropriate)

☒ X

I, the undersigned, do hereby declare that I have been duly authorised to act as representative, for the purposes of this application, on behalf of the applicant(s) named in paragraph 3 herein

Ella Cheong Mirandah & Sprusons Pte Ltd

Name and Signature

DD MM YYYY

01/08/2003

NOTES:

- 1 This form when completed, should be brought or sent to the Registry of Patents together with the rest of the application. Please note that the filing fee should be furnished within the period prescribed.
- 2 The relevant checkboxes as indicated in bold should be marked with a cross where applicable
- 3 Enter the name and address of each applicant in the spaces provided in paragraph 3.
Where the applicant is an individual
 - Names of individuals should be indicated in full and the surname or family name should be underlined
 - The address of each individual should also be furnished in the space provided
 - The checkbox for "For individual applicant" should be marked with a cross
Where the applicant is a body corporate
 - Bodies corporate should be designated by their corporate name and country of incorporation and, where appropriate, the state of incorporation within that country should be entered where provided
 - The address of the body corporate should also be furnished in the space provided
 - The checkbox for "For corporate applicant" should be marked with a cross
Where the applicant is a partnership
 - The details of all partners must be provided. The name of each partner should be indicated in full and the surname or family name should be underlined
 - The address of each partner should also be furnished in the space provided
 - The checkbox for "For others" should be marked with a cross and the name and address of the partnership should be indicated in the box provided
- 4 In the field for "Country", please refer to the standard list of country codes made available by the Registry of Patents and enter the country code corresponding to the country in question
- 5 The declaration of priority in paragraph 4 should state the date of the previous filing, the country in which it was made, and indicate the file number, if available. Where the application relied upon in an International Application or a regional patent application e.g. European patent application, one of the countries designated in that application [being one falling under section 17 of the Patents Act] should be identified and the country should be entered in the space provided.
- 6 Where the applicant or applicants is/are the sole inventor or the joint inventors, paragraph 5 should be completed by marking with a cross the 'YES' checkbox in the declaration (A) and the 'NO' checkbox in the alternative statement (B). Where this is not the case, the 'NO' checkbox in declaration (A) should be marked with a cross and a statement will be required to be filed on Patents Form 8
- 7 When an application is made by virtue of section 20(3), 26(6) or 47(4), the appropriate section should be identified in paragraph 6 and the number of the earlier application or any patent granted thereon identified. Applicants proceeding under section 26(6) should identify which provision in rule 27 they are proceeding under. If the applicants are proceeding under rule 27(1)(a), they should also indicate the date on which the earlier application was amended
- 8 Where the applicant wishes an earlier disclosure of the invention by him at an International Exhibition to be disregarded in accordance with section 14(4)(c), then the 'YES' checkbox at paragraph 7 should be marked with a cross. Otherwise, the 'NO' checkbox should be marked with a cross.
9. Where in disclosing the invention the application refers to one or more micro-organisms deposited with a depository authority under the Budapest Treaty, then the 'YES' checkbox at paragraph 8 should be marked with a cross. Otherwise, the 'NO' checkbox should be marked with a cross. Attention is also drawn to the Fourth Schedule of the Patents Rules.
- 10 Where an agent is appointed, the fields for "DETAILS OF AGENT" and "ADDRESS FOR SERVICE IN SINGAPORE" should be completed and they should be the same as those found in the corresponding Patents Form 41. In the event where no agent is appointed, the field for "ADDRESS FOR SERVICE IN SINGAPORE" should be completed, leaving the field for "DETAILS OF AGENT" blank
11. In the event where an individual is appointed as an agent, the sub-field "Name" under "DETAILS OF AGENT" must be completed by entering the full name of the individual. The sub-field "Firm" may be left blank. In the event where a partnership/body corporate is appointed as an agent, the sub-field "Firm" under "DETAILS OF AGENT" must be completed by entering the name of the partnership/body corporate. The sub-field "Name" may be left blank
12. Attention is drawn to sections 104 and 105 of the Patents Act, rules 90 and 105 of the Patents Rules, and the Patents (Patent Agents) Rules 2001
- 13 Applicants resident in Singapore are reminded that if the Registry of Patents considers that an application contains information the publication of which might be prejudicial to the defence of Singapore or the safety of the public, it may prohibit or restrict its publication or communication. Any person resident in Singapore and wishing to apply for patent protection in other countries must first obtain permission from the Singapore Registry of Patents unless they have already applied for a patent for the same invention in Singapore. In the latter case, no application should be made overseas until at least 2 months after the application has been filed in Singapore, and unless no directions had been issued under section 33 by the Registrar or such directions have been revoked. Attention is drawn to sections 33 and 34 of the Patents Act
14. If the space provided in the patents form is not enough, the additional information should be entered in the relevant continuation sheet. Please note that the continuation sheets need not be filed with the Registry of Patents if they are not used.



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IMPROVED CONNECTOR



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Usage

The design can typically be used in a connector, which has its deflecting beam located close to a stationary surface.

Existing Connector Design

The conventional connector design has a pivot point at or near bending area of a resilient member (e.g. a beam), in order to allow the resilient member to flex and produce compressing force, when the contact is pressed.

However, connector design becomes difficult with small and low height connector, which has constraints in size. The required compression force is either unattainable, or achieved with higher cost (such as more expensive material or complicated component designs)

Proposed Connector Design

The proposed design is suitable for a connector with its resilient member located close to a stationary surface

A non-moving protuberance (e.g. dimple, hump, etc) is created on the resilient member of the connector as a secondary pivot. It is designed to pivot against a stationary surface during the compression stroke.

When the protuberance pivots against the stationary surface, the effective resilient member length is shortened, thereby increasing the reaction force at the contact portion of the connector.

The protuberance can be adjusted to ensure that pivoting happens near the end of the compression stroke, it desirable, so as to prevent over-stressing the beam.

The protuberance can also be added to the stationary surface instead of the resilient member. But in most cases, the manufacturing process may not be feasible or cost-effective.

Figures 1A to 1E are examples of a connector designed with a secondary pivot. Figures 2 and 3 show an example of connector with a secondary pivot before and after pivoting occurs.

Advantages:

The secondary pivot design is useful when the connector imposes size constraints on the terminal, and the deflecting beam has to be located close to a stationary surface.

The secondary pivot design enables the connector to achieve higher compression force. By doing so, the force requirement of the connector is met without the use of more costly material or complicated component design.

By having a secondary pivot prevents the primary pivot from being over-stressed, hence resulting in a more durable connector.

CLAIMS:

1. A connector for electrically connecting at least two electrical points, the connector comprising:

a conductive resilient member arranged in a housing having a contact portion for contacting one of the at least two electrical points,

a first pivot point for pivoting the resilient member, and

a second pivot point disposed between the first pivot point and the contact portion;

wherein the resilient member pivots about the first pivot point at a first stage of contact between the contact portion and one of the at least two electrical points, and thereafter, the resilient member pivots about the second pivot point at a second stage of contact.

2. The connector of claim 1 wherein the second pivot point is a protuberance.

3. The connector of claim 2 wherein the protuberance is integral to the conductive resilient member.

4. The connector of claim 2 or 3 wherein the first and second pivot points are integral to the housing

5. The connector of any one of the preceding claims wherein the protuberance is a dimple.

6. The connector of any one of the preceding claims as substantially described and illustrated in the description and drawings.

IMPROVED CONNECTOR**ABSTRACT**

A connector for electrically connecting at least two electrical points. The connector has a conductive resilient member and two pivot points. The second pivot point is disposed between a contact portion of the conductive resilient member and the first pivot point.

Fig.3



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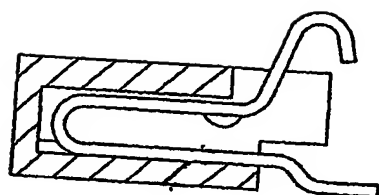


Fig. 1A

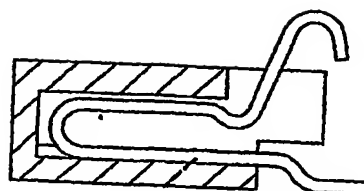


Fig. 1B

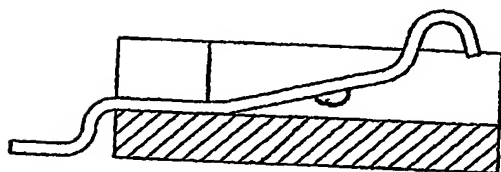


Fig. 1C

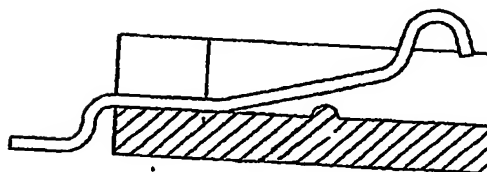


Fig. 1D

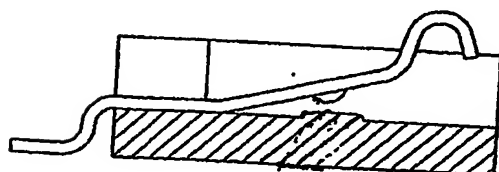


Fig. 1E

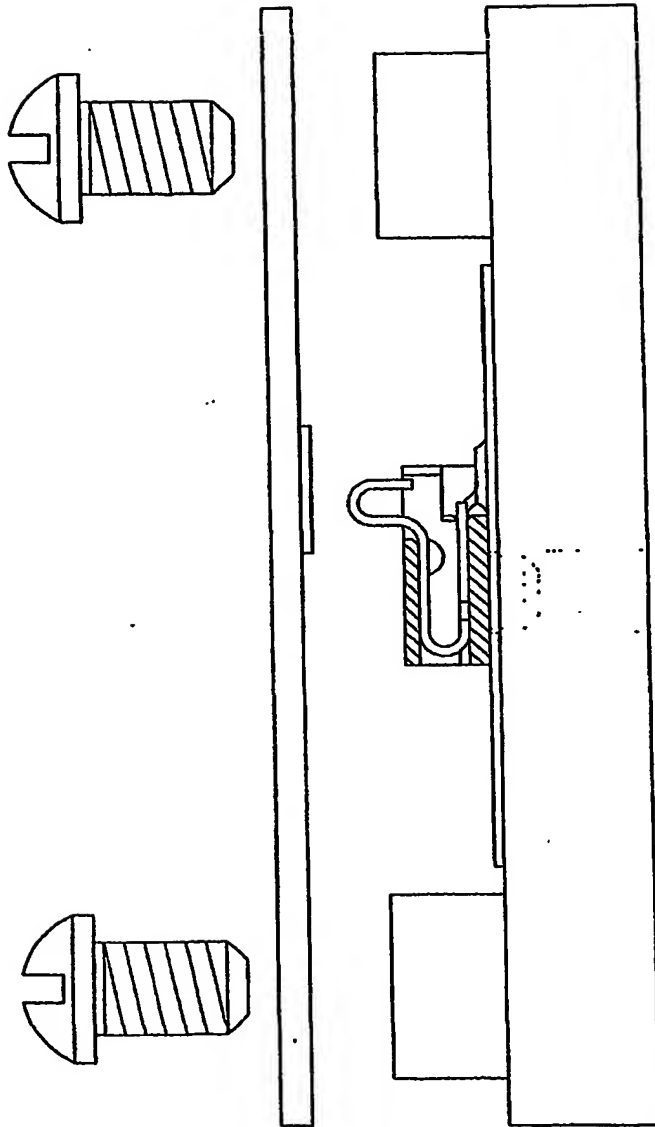


Fig. 2

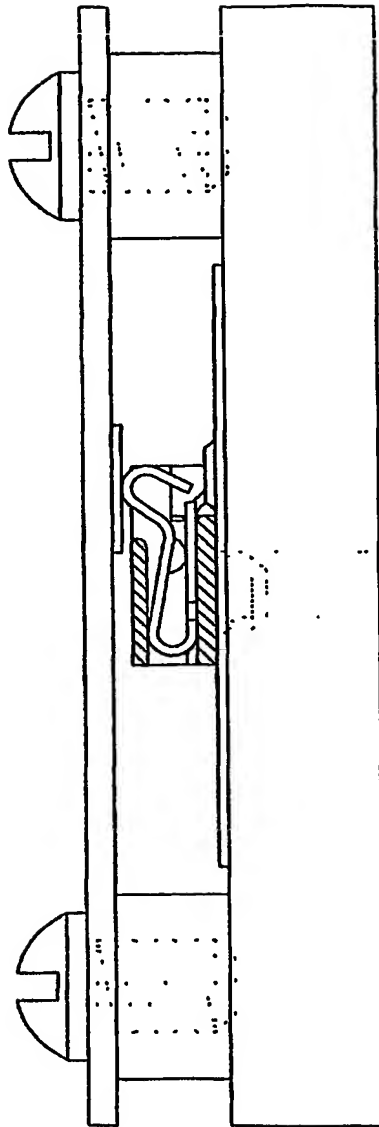


Fig. 3